

BULLETIN
OF THE
BROOKLYN ENTOMOLOGICAL SOCIETY

VOL. LIV

DECEMBER, 1959

No. 5

UNDESCRIBED SPECIES OF NEMATOCEROUS
DIPTERA. PART VIII.¹

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The preceding part under this general title appeared in June 1959 (Bul. Brooklyn Ent. Soc. 54: 53-59). At this time I am discussing various species of the so-called winter crane-flies from the Himalayas, where they were collected by Dr. Fernand Schmid in Uttar Pradesh, North India. I am greatly indebted to Dr. Schmid for large series of crane-flies from many parts of India, including the Himalayas. The types of the novelties here described are preserved in my personal collection.

TRICHOCERIDAE

Paracladura kumaonensis, n. sp.

Size relatively large (wing of male 4.8 mm. or more); general coloration of thorax dark brown; antennae with basal two segments yellow, basal flagellar segments darkened, the outer ones paling to yellow; halteres brownish black, the base of stem narrowly yellow; wings relatively broad, very weakly infuscated, unpatterned; *Sc* relatively long, *Sc*₁ ending opposite *R*₂, cell 2nd *A* narrow; abdomen dark brown; male hypopygium with the gonapophyses appearing as narrow blades, near outer end bent at a right angle into a long nearly straight spine.

Male: Length about 3.5-3.6 mm.; wing 4.8-5 mm.; antenna about 2.8-3 mm.

Female: Length about 4 mm.; wing 6 mm.

Rostrum yellow; palpi dark brown. Antennae with the sunken

¹ Contribution from the Entomological Laboratory, University of Massachusetts.

scape and enlarged pedicel yellow; basal four or five flagellar segments brown, the outer ones paling to yellow; proximal five or six segments of moderate length, the outer ones greatly lengthened. Head buffy, darker on posterior vertex; ocelli very distinct.

Thorax dark brown, posterior sclerites and pleura somewhat paler. Halteres brownish black, base of stem restrictedly yellow. Legs with coxae and trochanters light brown; remainder of legs dark brown, passing into brownish black; vestiture of legs long and delicate. Wings relatively broad, very weakly infuscated, unpatterned; veins pale brown, with long conspicuous trichia. Venation: Sc relatively long, Sc_1 ending opposite R_2 , Sc_2 about opposite two-fifths the length of the long straight Rs ; R_{2+3+4} variable, from subequal to R_{2+3} to nearly twice this length; $m-cu$ more than one-half its length beyond the fork of M_{3+4} ; cell 2nd A narrow, especially basally, gradually widened outwardly to before the tip.

Abdomen, including hypopygium, dark brown, with long pale setae; styli somewhat paler. Cerci of female appearing as whitened compressed blades, narrowed to the subacute tips. Male hypopygium with the dististyles relatively short and stout, unarmed, apex obtuse; outer surface with numerous long pale setae, mesal face with very abundant short erect pale setulae. Phallosome including a central structure that terminates in two narrow pale blades; each gonapophysis appearing as a narrow blade, near its outer end bent at a right angle into a long nearly straight spine.

Habitat: North India (Kumaon, Uttar Pradesh).

Holotype: ♂, Manghu Chatti, Pauri Garhwal, 9270 feet, May 21, 1958 (Fernand Schmid). *Allotype*: ♀, Trijugi, Pauri Garhwal, 7000 feet, May 26, 1958. *Paratypes*: ♂, Gaurikund, Pauri Garhwal, 6400–7200 feet, May 10, 1958; 1 ♂, pinned with the allotype; 2 ♂♂, Gangrea, Pauri Garhwal, 7500–10,000 feet, June 12, 1958.

Paracladura kumaonensis is quite distinct from other regional species, including *P. elegans* Brunetti and *P. gracilis* Brunetti, in the coloration of the body and legs. It is more like *P. omeiensis* Alexander, of western China, distinguished by the larger size and by the venation, including the long Sc .

Trichocera bisignata, n. sp.

Size medium (wing of female 6.5 mm. or more); general coloration of thorax dark brown, more or less variegated by paler posteriorly; knobs of halteres brownish black; legs brownish black to black; wings broad, weakly tinted, with two conspicuous brown

areas, one beneath the origin of *Rs*, the other over the anterior cord; vein *2nd A* with two macrotrichia beyond midlength; abdomen uniformly dark brown; ovipositor with cerci relatively long and only gently curved.

Female: Length about 5.8–6 mm.; wing 6.5–7 mm.; antenna about 2.4–2.5 mm.

Rostrum and palpi black. Antennae relatively short; scape and pedicel dark brown, flagellum black, the outer segments paler. Head dark brown.

Pronotum brownish black, scutellum and pretergites paler. Mesonotal praescutum dark brown, with four slightly indicated darker stripes on disk, margins weakly darkened; remainder of mesonotum dark brown, vaguely patterned with paler at suture, on posterior-lateral parts of scutal lobes and posterior border of scutellum; parascutella and pleurotergite pale, especially in holotype. Halteres relatively short, stem brownish yellow, knob brownish black. Legs with coxae brown, trochanters slightly paler; femora dark brown, bases slightly brightened; remainder of legs uniformly brownish black to black. Wings broad, weakly tinted; two large and conspicuous brown areas on disk, one over *r-m* and adjoining veins, the other beneath the origin of *Rs*, chiefly in cell *R* but including also cell *R*₁; much narrower brown seams over outer end of cell *1st M*₂ and *m-cu*; veins light brown, darker in the clouded areas. Vein *Sc* with numerous dorsal and ventral punctures without trichia both basad and distad of *h*, followed by a short glabrous area; outwardly setiferous punctures very numerous, especially beyond origin of *Rs*; no trichia on *r-m*; vein *2nd A* with two separated trichia beyond midlength. Venation: *Sc*₁ ending opposite *R*₂; *R*₂₊₃₊₄ and *R*₂₊₃ subequal; cell *M*₁ parallel-sided, about one-half longer than its petiole; *m-cu* shortly before or beyond fork of *M*₃₊₄; cell *2nd A* widened outwardly, the vein bent strongly into the margin.

Abdomen uniformly dark brown; ovipositor with cerci horn-yellow, relatively long, only gently curved.

Habitat: North India (Kumaon, Uttar Pradesh).

Holotype: ♀, Rata, Almora, 11,000 feet, September 14, 1958 (Fernand Schmid). *Paratopotype*: ♀, on same pin, beneath the type.

Trichocera bisignata is readily told from other regional members of the genus by the wing pattern. It suggests species such as *T. maculipennis* Meigen or *T. fernaldi* Alexander, differing from these in the coloration of the body, legs and wings, the vein trichiation, and the venation, especially of the radial field.

Particular attention is called to an important paper by Laurence, discussing the trichiation of the wing veins in several European species of *Trichocera*.² Although some earlier workers had made use of the character of number and arrangement of the trichia on the veins in this genus, the detailed statistical study by Laurence has added materially to our knowledge of the subject. Of particular value is his distinguishing between the trichia of the upper (dorsal) and lower (ventral) surfaces of the various veins. He considers especially the arrangement of the trichia on veins *Sc* and *Rs* but it is evident that certain other veins are of comparable importance, particularly *2nd A*.

From Laurence's detailed study of *Trichocera saltator* (Moses Harris), it now seems evident that some confusion in the synonymy and geographical distribution has resulted in the past. It would appear that this species does not occur in North America, as hitherto reported, and the species so named presumably will have to be designated by one of its later names, hitherto placed in the synonymy.³ It likewise seems certain that *Trichocera montana* Brunetti, described from the western Himalayas, is a species distinct from *T. saltator*, as now defined. This fly is not known to me, not having been re-discovered by Schmid or other recent collectors in the western Himalayas. It is described as being unusually small, scarcely larger than *Paracladura gracilis* Brunetti, and thus indicating a species very much smaller than any other of the now numerous members of the genus known from the Himalayas.

Trichocera schmidi, n. sp.

Size large (wing of male 9 mm.); general coloration of thorax brown, the pleura brownish yellow; knobs of halteres infuscated; legs light brown; wings weakly tinged with brown, with vague darker clouds beneath origin of *Rs* and over *r-m*; veins with numerous macrotrichia, including complete series on *Sc*; male hypopygium very large and complex, with hair brushes and pencils on both the basistyle and dististyle.

Male: Length about 9 mm.; wing 9 mm.; antenna about 4.2 mm.

Rostrum and the elongate palpi black. Antenna moderately

² Laurence, B. R. The British species of *Trichocera* (Diptera: Trichoceridae). Proc. R. ent. Soc. Lond. (A) 32: 132-138, 2 figs.; October 1957.

³ Alexander, C. P. Diptera of Connecticut, 1: 191; 1942.

long; scape brown, pedicel light yellow, flagellum dark brown; outer flagellar segments very slender. Head brown.

Pronotum brown, vaguely patterned with darker, scutellum light yellow laterally; scutum with erect black setae. Mesonotal praescutum with the median area yellowish brown, the sides slightly darker; posterior sclerites of notum obscure yellow; vestiture of notum relatively long but sparse, black; scutellum with four long, slightly incurved setae. Pleura brownish yellow. Halteres with stem yellowed, knob infuscated. Legs with coxae and trochanters testaceous yellow; remainder of legs light brown, terminal tarsal segments blackened. Wings weakly tinged with brown; vague darker clouds beneath origin of *Rs* and over *r-m*; veins brown, delicate. Macrotrichia present on all longitudinal veins except near wing base, lacking at origin of *Rs* and basal fourth of *M* and *1st A*; *r-m* and *2nd A* without trichia; *Sc* with numerous trichia over the whole length. Venation: *Sc*₁ ending nearly opposite *R*₂, *Sc*₂ shortly beyond origin of *Rs*; *R*₂₊₃₊₄ subequal to *R*₂₊₃; cell *M*₁ slightly longer than its petiole; vein *2nd A* relatively long, curved very gradually to the margin.

Abdomen, including hypopygium, yellowish brown. Male hypopygium very large and complicated in structure. Basistyle with a strong compact pencil of bristles on mesal face at near midlength, arising from a short basal tubercle; near apex of style on mesal face with two elongate closely approximated setae. Dististyle nearly as long as the basistyle, strongly curved, narrowed outwardly into a slender straight rod; vestiture includes a compact oval area of long yellow setae on basal third, these varying in length, some very long; a narrower group of very long setae at near two-thirds the length, ending at the base of the narrowed tip, the latter with scattered bristles, terminating in a few stronger setae. A central depressed-flattened plate that terminates in four points, the lateral pair slender, with obtuse tips, the inner pair shorter, broad, more or less folded. Each gonapophysis appears as a small slender blade, the two decussate at the midline.

Habitat: North India (Kumaon, Uttar Pradesh).

Holotype: ♂, Rata, Almora, 11,000 feet, September 14, 1958 (Fernand Schmid).

This distinct fly is named for the collector, Dr. Fernand Schmid, who has added vastly to our knowledge of the insect fauna of the Himalayas. *Trichocera schmidi* is readily told from all other regional species of the genus, where the male sex is known, by the striking modifications of the male hypopygium, particularly of the basistyle and dististyle. In these features the fly is quite distinct

from all others that have complex male hypopygia, such including *T. colei* Alexander, *T. forcipula* Nielsen, *T. lutea* Becher, *T. mirabilis* Alexander, *T. salmani* Alexander, *T. ursa-major* Alexander, and a few others not so highly modified.

***Trichocera tenuicercus*, n. sp.**

Size large (wing of female over 8 mm.); general coloration of mesonotal praescutum and scutal lobes dark brown, the posterior mesonotum brownish yellow; anterior thoracic pleura dark brown, the posterior sclerites paler; wings broad, weakly tinged with brown, unpatterned except for the slightly darker stigma; abundant macrotrichia on all longitudinal veins except 2nd *A*; *Sc*₂ about opposite two-fifths *Rs*; cell *M*₁ relatively deep, about three times its petiole; abdominal tergites uniformly dark brown; ovipositor with cerci unusually long and narrow, the lower margin very gently arcuated.

Female: Length about 8 mm.; wing 8.2 mm.

Rostrum dark brown; palpi brown, terminal segment about one-third longer than the constricted penultimate. Antennae dark brown; first flagellar segment enlarged at base, strongly narrowed outwardly. Head dark brown.

Pronotal scutum dark brown, scutellum yellowed. Mesonotal praescutum and scutal lobes almost uniformly dark brown, with sparse elongate black setae; posterior sclerites of notum brownish yellow; scutellum with three erect setae on either side of midline. Propleura and mesepisternum dark brown, the mesepimeron and metapleura much paler; dorsopleural membrane light brown. Halteres with stem yellow, knob broken. Legs with fore coxae dark brown anteriorly, the remainder of coxae and the trochanters brownish yellow; mid and hind coxae with a row of long setae, not as well indicated on fore pair; remainder of legs dark brown. Wings broad, weakly tinged with brown; stigma slightly darker brown, extending from *R*₂ to tip of vein *R*₁₊₂; veins slender, dark brown. Macrotrichia of veins very abundant, of moderate length, on all longitudinal veins excepting 2nd *A*; *Sc* with trichia throughout its length. Venation: *Sc*₁ ending shortly before *R*₂, *Sc*₂ about opposite two-fifths *Rs*; *R*₂₊₃₊₄ and *R*₂₊₃ subequal, about one-half *R*₁₊₂; cell *M*₁ relatively deep, about three times its petiole; *m-cu* close to fork of *M*₁₊₂; vein 2nd *A* relatively long, slightly angulated beyond midlength, the cell much narrower than in *alticola*.

Abdomen dark brown, proximal sternites vaguely yellowed at base. Ovipositor with cerci unusually long and narrow, with scat-

tered setigerous punctures provided with pale setae; lower margin very gently arcuate.

Habitat: North India (Kumaon, Uttar Pradesh).

Holotype: ♀, Manghu Chatti, Pauri Garhwal, 9000-9270 feet, May 20, 1958 (Fernand Schmid).

The most similar regional species is *Trichocera alticola* Alexander, occurring at high altitudes in Kashmir. This differs in the coloration of the body and wings, the trichiation of the veins and especially in the longer and more slender cerci. In *alticola* vein 2nd *A* has about a dozen macrotrichia on more than the basal half. The European *T. major* Edwards is smaller, with the venation and vein trichiation distinct, including a series of trichia on the basal two-thirds of 2nd *A*.

FIRST RECORDED OCCURRENCE OF THE GENUS DIOXYS IN IDAHO (HYMENOPTERA: MEGACHILIDAE)

By ARTHUR R. GITTINS¹

During 1958 the writer observed a single pinned specimen of *Dioxys* carrying an Idaho locality label in a box of miscellaneous Apoidea. Since this genus had not previously been recorded from the state, the specimen was sent to Paul D. Hurd and was identified by him as a female of *Dioxys pomonae pomonae* Cockerell.

The specimen was collected from flowers of Horse Brush, *Tetradymia canescens* D. C., four miles east of Terreton, Jefferson County, Idaho, on July 25, 1957 by W. F. Barr.

This collection was made at the northeastern limits of the Columbia plateau and increases by approximately 200 miles the known northward range of the species. Additionally, it serves to confirm the presence of this genus and species in Idaho, which is within the limits suggested by Dr. Hurd in a recent paper "American Bees of the Genus *Dioxys* Lepeletier and Serville," Univ. of Cal. Publ. in Ent. 14(4): 282, 1958.

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